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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,097	07/02/2003	Jason Eckhart	ECKHART 1-2-1-5	3424

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EXAMINER
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RUTTEN, JAMES D

ART UNIT	PAPER NUMBER
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2192

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/28/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/28/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket@hittgaines.com

**Office Action Summary**

Application No.

10/612,097

Applicant(s)

ECKHART ET AL.

Examiner

J. Derek Rutten

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Claims 1-42 have been examined.

#### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 20 recites the limitation "The method of claim 11" in line 1. There is insufficient antecedent basis for this limitation in the claim. For the purpose of further examination, claim 20 will be interpreted as being dependent upon claim 15.

#### *Double Patenting*

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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5. Claims 1, 15, and 29 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 11 of copending Application No. 10/782,080 in view of U.S. Patent 5,568,644 to Nelson et al. (hereinafter "Nelson").

For example, in regard to claim 1, the '080 application claims:

*A condition management system for use with a processor employing a hierarchical register consolidation structure, comprising: See claim 1 lines 1-3:*

A condition management callback system for use with a processor employing a hierarchical register consolidation structure, comprising

*a condition management structure configured to abstract groups of status indicators associated with said hierarchical register consolidation structure into a tree of hierarchical container objects and element objects, each of said container objects associated with at least one of said element objects and linked to a single parent object, each of said element objects configured to represent at least one of said status indicators and linked to a single child object; See claim 1 lines 4-11:*

a condition management structure containing groups of status indicators associated with said hierarchical register consolidation structure logically abstracted into a tree of hierarchical container objects and element objects, each of said container objects associated with at least one of said element objects and linked to a single parent object, each of said element objects representing at least one of said status indicators and linked to a single child object

*an abstraction retrieval subsystem configured to employ said condition management structure to traverse said hierarchical register consolidation structure to determine a condition of at least one of said status indicators; and See claim 1 lines 15-18:*

an abstraction retrieval subsystem configured to employ said condition management structure to determine a condition of at least one of said status indicators by traversing said hierarchical register consolidation structure

The '080 application does not expressly disclose: *an abstraction management subsystem configured to employ said condition management structure to control a propagation of selected ones of said status indicators through said hierarchical register consolidation structure*. However, Nelson teaches the propagation of status information associated with enabling an interrupt. See column 4 lines 14-15, e.g. "propagate a hardware interrupt." It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Nelson's propagation with the system of '080 in order to control the priority of interrupts by propagating status information.

This is a provisional obviousness-type double patenting rejection.

### ***Claim Rejections - 35 USC § 101***

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 1-3, 7-12, and 14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1 is directed to a "system for use with a processor." However, this system appears to be comprised of mere software elements that are interpreted as being a software system, per

se. Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In this case, a "condition management system *for use* with a processor" is recited. However, the claim language includes the phrase "for use" which indicates that the processor is not part of the system. Further claim elements are merely directed to software elements and do not include any statutory system elements. In contrast, claim 4 further limits the condition management structure to be a hardware element ("pre-allocated within the hardware") which is interpreted to provide a statutory system element permitting the data structure's functionality to be realized. Claims 2, 3, 7-12, and 14 are dependent upon claim 1 but fail to provide any further statutory system elements. See MPEP 2106.01.

8. Claims 29-42 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 29-42 are directed to a memory for storing data comprising various data structures. This claimed subject matter lacks a practical application of a judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a useful, concrete and tangible result. Specifically, the claimed subject matter does not produce a useful result because the claimed subject matter fails to sufficiently reflect at least one practical utility set forth in the descriptive portion of the specification. More specifically, while the described

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practical utility is directed to controlling the propagation of status indicators through a hierarchical register consolidation structure (see paragraph [0008]), the claimed subject matter relates ONLY to the organization of a data structure used to represent a hierarchical register consolidation structure. None of the claims are directed to the *propagation* of status indicators as suggested in the specification. It is noted that claim 41 is directed to status indicators. However, there is no useful result achieved through a propagation of these indicators. See MPEP 2106(IV)(C)(2)(2)(a).

Further, claims 29-42 are directed to a “memory for storing data.” Further claim elements are directed to the organization of this data, and are interpreted as being nonfunctional descriptive material. Descriptive material can be characterized as either “functional descriptive material” or “nonfunctional descriptive material.” In this context, “functional descriptive material” consists of data structures and computer programs which impart functionality when employed as a computer component. Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). When nonfunctional descriptive material is recorded on some computer-readable medium, in a computer or on an electromagnetic carrier signal, it is not statutory since no requisite functionality is present to satisfy the practical application requirement. Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure’s functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and

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functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory.

See MPEP 2106.01.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 2, 5-11, 13, 15, 16, 19-25, 27, 29-31, 33-35, and 39-42 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,568,644 to Nelson et al. (hereinafter "Nelson").

In regard to claim 1, Nelson discloses:

*A condition management system (see Fig. 2) for use with a processor employing a hierarchical register consolidation structure, comprising:*

*a condition management structure configured to abstract groups of status indicators associated with said hierarchical register consolidation structure into a tree of hierarchical container objects and element objects, each of said container objects associated with at least one of said element objects and linked to a single parent object,*

See Fig. 1A., also column 3 lines 9-15, e.g. "hierarchical tree." Nelson provides an abstraction of a hierarchy used for managing interrupts.



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*each of said element objects configured to represent at least one of said status indicators and linked to a single child object; Fig. 1A illustrates that each element is associated with a single set, or collection, of element objects. Further, see column 3 lines 44-51.*

*an abstraction retrieval subsystem configured to employ said condition management structure to traverse said hierarchical register consolidation structure to determine a condition of at least one of said status indicators; and See column 4 line 66 – column 5 line 2, e.g. “interrupt engine begins processing.”*

*an abstraction management subsystem configured to employ said condition management structure to control a propagation of selected ones of said status indicators through said hierarchical register consolidation structure. See column 4 lines 13-14, e.g. “propagate an interrupt.”*

In regard to claim 2, the above rejection of claim 1 is incorporated. Nelson further discloses: *wherein each of said container objects includes said at least one of said element objects. See Fig. 1A.*

In regard to claim 5, the above rejection of claim 1 is incorporated. Nelson further discloses: *wherein said status indicators are bits of registers within said hierarchical register consolidation structure. See column 3 lines 35-37. Note that registers are computer devices that store a collection of bits.*

In regard to claim 6, the above rejection of claim 1 is incorporated. Nelson further discloses: *wherein said hierarchical register consolidation structure is a hierarchical interrupt register structure of said processor.* See column 3 lines 9-13.

In regard to claim 7, the above rejection of claim 6 is incorporated. Nelson further discloses: *wherein each of said status indicators represents an interrupt bit in an interrupt register of said hierarchical interrupt register structure.* See column 3 lines 35-37.

In regard to claim 8, the above rejection of claim 7 is incorporated. Nelson further discloses: *wherein said abstraction management subsystem is further configured to set/clear or enable/disable interrupts for said interrupt bit.* See column 8 lines 18-21.

In regard to claim 9, the above rejection of claim 1 is incorporated. Nelson further discloses: *wherein said parent object is a consolidation element object associated with a hierarchically higher container object and said child object is a hierarchically lower container object.* See Fig. 1A in view of the key in Fig. 1B

In regard to claim 10, the above rejection of claim 9 is incorporated. Nelson further discloses: *wherein said consolidation element object represents the consolidation of all of said element objects associated with said child object.* See column 9 lines 48-50 in view of FIG. 1A.

In regard to claim 11, the above rejection of claim 1 is incorporated. Nelson further discloses: *wherein said abstraction management subsystem is further configured to set/clear said status indicators or maintain associated parameters for one or more of said status indicators*. See column 4 lines 3-5, e.g. “third parameter.” Note that the claim language includes the alternative “or,” which permits broad interpretation of maintenance of parameters as satisfying the claim.

In regard to claim 13, the above rejection of claim 1 is incorporated. Nelson further discloses: *wherein said container objects include addresses to registers of said hierarchical register consolidation structure, said abstraction retrieval subsystem and said abstraction management subsystem further configured to employ said addresses in accessing said hierarchical register consolidation structure*. See column 3 line 47.

In regard to claim 15, Nelson discloses a method. See Fig. 3. All further limitations have been addressed in the above rejection of claim 1.

In regard to claims 16, 19-25, and 27, the above rejection of claim 15 is incorporated. All further limitations have been addressed in the above rejection of claims 2, 5-11, and 13, respectively.

In regard to claim 29, Nelson discloses: *A memory for storing data for access by an application program being executed in a processor.* See Fig. 2 element 20. All further limitations have been addressed in the above rejection of claims 1 and 9.

In regard to claim 30, the above rejection of claim 29 is incorporated. Nelson further discloses: *wherein one of said container objects being associated with said at least one of said element objects and a virtual element object if two groups of said status indicators consolidate to a single consolidation status indicator of said hierarchical register consolidation structure, said virtual element object being said parent object to one of said container objects associated with said element objects representing said status indicators of one of said two groups.* See Fig. 1A. Note elements 110, 115, 145, 150, and setc.

In regard to claim 31, the above rejection of claim 29 is incorporated. Nelson further discloses: *wherein a single one of said element objects being said parent object to one of said container objects associated with said element objects representing a group of said status indicators if said group of said status indicators consolidate to a plurality of consolidation status indicators of said hierarchical register consolidation structure, remaining ones of said plurality of said consolidation status indicators not being represented in said condition management data structure.* See Fig. 1A, element 115 in view of column 9 lines 48-64.

In regard to claim 33, the above rejection of claim 29 is incorporated. All further limitations have been addressed in the above rejection of claim 2.

In regard to claim 34, the above rejection of claim 29 is incorporated. Nelson further discloses: *wherein only one of said container objects is a root container object, said root container object being associated with a hierarchically highest group of said status indicators of said hierarchical register consolidation structure and being a starting point for accessing said condition management data structure, said root container object further having said parent link to said parent object being unestablished.* See Fig. 1A, element 105.

In regard to claim 35, the above rejection of claim 34 is incorporated. Nelson further discloses: *wherein ones of said container objects are leaf container objects, each of said leaf container objects being associated with a hierarchically lowest group of said status indicators, each of said elements objects associated with said leaf container objects having said child link to said child object being unestablished.* See Fig. 1A, “setd”

In regard to claims 39-42, the above rejection of claim 29 is incorporated. All further limitations have been addressed in the above rejection of claims 5-7 and 10, respectively.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 3, 4, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson as applied to claims 1 and 15 above, and further in view of U.S. Patent 5,495,615 to Nizar et al. (hereinafter "Perez").

In regard to claim 3, the above rejection of claim 1 is incorporated. Nelson does not expressly disclose: *wherein said condition management structure is dynamically allocated*. However, Nizar teaches dynamic allocation of interrupt assignment. See column 5 lines 6-8. It would have been obvious to one of ordinary skill at the time the invention was made, to use Nizar's dynamic allocation with Nelson's hierarchical tree in order to restrict interrupt priority levels as suggested by Nizar (see column 5 lines 13-15).

In regard to claim 4, the above rejection of claim 1 is incorporated. Nelson does not expressly disclose: *wherein said condition management structure is pre-allocated within the hardware associated with said processor*. However, Nizar teaches pre-allocation of interrupt assignment. See column 5 lines 2-5. It would have been obvious to one of ordinary skill at the time the invention was made, to use Nizar's static allocation

with Nelson's hierarchical tree in order to comply with licensing restrictions as suggested by Nizar (see column 5 lines 11-13).

In regard to claims 17 and 18, the above rejection of claim 15 is incorporated. All further limitations have been addressed in the above rejection of claims 3 and 4, respectively.

13. Claims 12 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson as applied to claims 1 and 15 above, and further in view of "Operating System Concepts" by Silberschatz et al. (hereinafter "Silberschatz").

In regard to claim 12, the above rejection of claim 1 is incorporated. Nelson does not expressly disclose: *wherein said abstraction management subsystem is further configured to create or destroy said condition management structure*. However, Silberschatz teaches the creation of program structures. See page 252 paragraph 2. It would have been obvious to one of ordinary skill at the time the invention was made, to use Silberschatz' teaching of allocation with Nelson's structures in order to load data into memory for processing as suggested by Silberschatz (see page 252 paragraph 2).

In regard to claim 26, the above rejection of claim 15 is incorporated. All further limitations have been addressed in the above rejection of claim 12.

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14. Claims 14 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson as applied to claims 1 and 15 above, and further in view of U.S. Patent 5,530,874 to Emery et al. (hereinafter "Emery").

In regard to claim 14, the above rejection of claim 1 is incorporated. Nelson further discloses *element objects associated with a leaf container object*. See Fig. 1A. Nelson does not expressly disclose: *wherein said abstraction retrieval subsystem is further configured to employ a mask to determine said condition of said at least one of said status indicators represented by ones of said element objects*. However, Emery teaches the use of interrupt masks. See column 2 lines 40-54, e.g. "mask logic." It would have been obvious to one of ordinary skill at the time the invention was made, to use Emery's mask logic with Nelson's tree in order to determine if a particular interrupt should be disabled as suggested by Emery (see column 3 lines 1-6).

In regard to claim 28, the above rejection of claim 15 is incorporated. All further limitations have been addressed in the above rejection of claim 14.

15. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson as applied to claim 29 above, and further in view of U.S. Patent 6,584,532 to Francis et al. (hereinafter "Francis").



In regard to claim 32, the above rejection of claim 29 is incorporated. Nelson discloses grouping elements in a child container having a parent container (see Fig. 1A). Nelson does not expressly disclose: *wherein a first portion of one group of said status indicators being represented by a first set of said element objects associated with one of said container objects and a second portion of said one group of said status indicators being represented by a second set of said element objects associated with a virtual container object if said first and second portions of said one group of said status indicators consolidate to different consolidation status indicators of said hierarchical register consolidation structure, said virtual container object having a virtual parent link to a different parent object than said parent link of said one of said container objects.* However, Francis teaches that various elements on a level can have different parent objects. See Fig. 2. It would have been obvious to one of ordinary skill at the time the invention was made, to use Francis' teaching of trees with Nelson's tree in order to provide a flexible implementation of Nelson's tree.

16. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson as applied to claim 29 above, and further in view of U.S. Patent 5,129,083 to Cutler et al. (hereinafter "Cutler").

In regard to claim 36, the above rejection of claim 29 is incorporated. Nelson does not expressly disclose: *wherein each of said element objects include a container link to its associated one of said container objects.* However, Cutler teaches an object with a

pointer to the container in which it resides. See column 8 lines 58-60. It would have been obvious to one of ordinary skill at the time the invention was made, to use Cutler's pointer with Nelson's elements in order to provide easy traversal of a tree.

17. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson as applied to claim 29 above, and further in view of U.S. Patent 5,995,736 to Aleksic et al. (hereinafter "Aleksic").

In regard to claim 37, the above rejection of claim 29 is incorporated. Nelson does not expressly disclose: *wherein each of said element objects include a unique name and a position of said at least one of said status indicators within a register of said hierarchical register consolidation structure that is associated with said at least one of said status indicators*. However, Aleksic teaches unique names and positions in a register. See column 9 lines 34-36. It would have been obvious to one of ordinary skill at the time the invention was made, to use Aleksic's names and positions with Nelson's elements in order to provide information useful for analysis.

18. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson as applied to claim 29 above, and further in view of U.S. Patent 6,883,053 to Shinagawa et al. (hereinafter "Shinagawa").

In regard to claim 38, the above rejection of claim 29 is incorporated. Nelson further discloses a persistency parameter (see column 4 lines 3-5). Nelson does not expressly disclose: *wherein each of said container objects include an address of a register of said hierarchical register consolidation structure selected from the group consisting of: a status register address; a mask register address; a persistency register address; and an alarm register address.* However, Shinagawa teaches the use of a status register along with a mask register (see column 2 lines 27-34). Further, Archer teaches the use of an alarm register (see column 5 lines 27-28). It would have been obvious to one of ordinary skill at the time the invention was made, to use Shinagawa's status and mask registers along with Archer's alarm register with Nelson's persistency parameter in order to provide quick access to data.

### ***Conclusion***

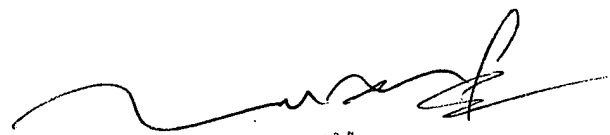
19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Derek Rutten whose telephone number is (571)272-3703. The examiner can normally be reached on M-F 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571)272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jdr



TUAN DAM  
SUPERVISORY PATENT EXAMINER